50. On Two new Trematode Parasites from the Indian Cobra.

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(Text-figure 122.)

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In an Indian Cobra (*Naja tripudians*) which died in the Zoological Society's Gardens on 11th October, 1911, a few specimens of two interesting new Trematode parasites were found. Of the first of these a single specimen was found in the gall-bladder; of the second, four somewhat macerated specimens were met with in the ureters. Four different species of Nematode parasites were also present in the same animal, so that altogether it was infected with six different species of parasitic worms.

The first species belongs to the family Dicrocœliidæ and is of particular interest from the fact that members of this family are not commonly found in Reptiles. Hitherto the only typical representative in Reptiles is that described by de Faria (1910). The present species shows most of the characteristic features of the family, but at the same time it exhibits several divergences of such importance as to warrant its being regarded as the type of a new genus. For that genus I propose the name *Xenopharynx*.

Xenopharynx solus, gen. et sp. n. (Text-fig. 122, B.)

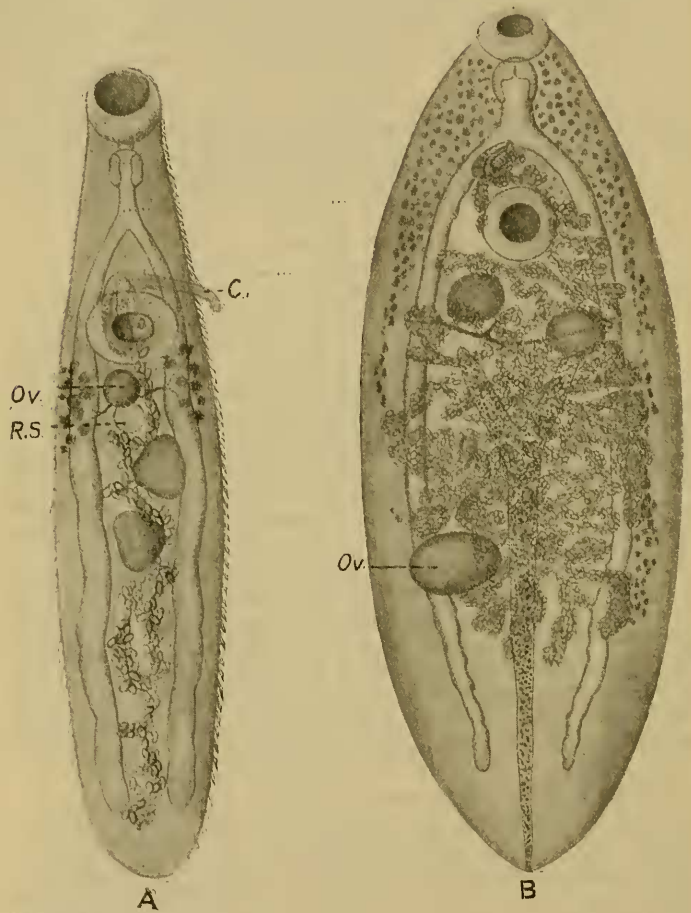
Only a single specimen was found in the gall-bladder. It measures 4·55 mm. in length and 1·68 mm. in greatest breadth, which is about the middle of the body. The outline is almost elliptical and the body is fairly flat. There are no cuticular spines.

The oral sucker has a diameter of ·42 mm., but its length is only ·30 mm. The ventral sucker is circular, with a diameter of ·41 mm. It is situated 1·13 mm. from the anterior end. The neck is therefore almost exactly one-fourth of the body-length.

The pharynx is contiguous with the oral sucker and measures ·22 × ·24 mm. It possesses the curious shape shown in text-fig. 122, B. At first sight this shape was thought to be the result of

unequal contraction of the pharyngeal walls or perhaps due to the drawing of the œsophagus into the lumen of the pharynx, but neither of these possibilities seemed to accord with experience. The condition appears to be brought about by the thinning of the

Text-fig. 122.



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A. *Styphlodora najæ*, sp. n. Ventral view. × 40. *C.*, cirrus; *Ov.*, ovary; *R.S.*, receptaculum seminis.

B. *Xenopharynx solus*, gen. et sp. n. Ventral view. × 25. *Ov.*, ovary.

posterior part of the pharyngeal wall, which anteriorly is of the usual thickness. In section the appearance is somewhat horse-shoe-shaped. It is unfortunate that no second specimen was

available for comparison. Following the pharynx, and about as long as it, is a wide œsophagus, which bifurcates about midway between the pharynx and the ventral sucker. The diverticula are fairly uniform, but become somewhat sinuous towards their termination, which is ·45 mm. from the end of the body.

The excretory vesicle is Y-shaped, with a long median stem reaching the middle of the body and two short limbs, the left of which extends as far forward as the left testis. Owing to the fact that sections could not be made, it was impossible to determine whether Odhner's view with regard to the shape of the excretory vesicle in the Dicrocœliidæ holds good in this case. To all appearance, however, the paired limbs are part of the vesicle. Their walls stand out as distinctly, and are about the same thickness, as those of the main stem.

The testes lie not far behind the ventral sucker. They are two transversely oval bodies, separated from each other by a distance equal to their diameter. They are situated obliquely, the right being about half a diameter in advance of the left, and being separated from the ventral sucker by a similar distance. They measure ·31 mm. in transverse diameter. The cirrus-pouch is of small size and lies entirely in front of the ventral sucker. It measures ·29 × ·13 mm., and contains a small convoluted vesicula seminalis, a comparatively long pars prostatica, and a short narrow ductus ejaculatorius. The genital aperture is median, just over the intestinal bifurcation.

The ovary lies a considerable distance behind the testes, about midway between them and the end of the body. It is on the right side overlying the right intestinal diverticulum. Its outline is transversely oval and it is much larger than the testes, measuring ·31 × ·47 mm. There appears to be no receptaculum seminis, or if present it is obscured by the uterus. The yolk-glands are situated chiefly in the neck, the sides of which they almost completely fill. They extend on each side from the oral sucker to well behind the ventral sucker, but they are more extensive on the left than on the right. On the right they stop at the level of the bifurcation of the excretory vesicle, although there are a couple of small follicles near the ovary. On the left they extend slightly beyond the level of the ovary. In the neck the follicles spread well in towards the mid-line of the body, but behind the ventral sucker they lie entirely to the outer side of the intestinal diverticula. The transverse yolk-ducts cross the body about the level of the testes, and the shell-gland lies just behind the right testis.

The uterus is moderately voluminous and is thrown into irregular narrow convolutions. It does not extend much behind the ovary, but in front it overlaps the intestinal diverticula, and winding between the testes it passes forward on the left side of the ventral sucker and makes a few short turns in front of the sucker before passing into the short vagina. The eggs are small and numerous, measuring ·036–·039 × ·018–·019 mm.

The new species differs from all other Dicrocœliidæ in the distribution of the yolk-glands and in the shape of the pharynx. Another important feature is the distance separating the ovary from the shell-gland complex. From the genus *Dicrocœlium* it is further distinguished by the position of the testes and the ovary and by the extent of the uterus. With *Platynosomum* it is more closely allied, yet the differences between it and this genus are greater than those separating *Dicrocœlium* from *Platynosomum* or *Eurytrema*. It is rather curious that this new species does not show any particularly close relationship to "*Dicrocœlium*" *infidum* de Faria from the snake, *Eunectes marina*. The latter is closely allied to the avian genus *Platynosomum* and should be included in it, unless de Faria's doubtful observation in regard to the excretory vesicle proves to be correct.

Styphlodora najæ, sp. n. (Text-fig. 122, A.)

Four somewhat macerated specimens of this species were found in the ureters of the Cobra. The species is a typical member of the genus *Styphlodora* and presents a very great resemblance to *S. serrata* Looss and to *S. horrida* Leidy. The features separating it from these two species are so slight that I have some hesitation in regarding it as a distinct species. They are, however, quite as distinctive as those separating the above two species from each other. The difficulty is rather increased by the fact that the present specimens, although mature, are possibly not fully grown.

The length is 2·0-2·4 mm., the greatest breadth ·42–·55 mm., which occurs a little behind the ventral sucker. The breadth of the whole postacetabular region is fairly uniform, and there is only a very slight attenuation in the neck. There is a considerable amount of dorso-ventral flattening. In each of the specimens cuticular spines were entirely absent, but it is practically certain that they have fallen off, and it would be unreasonable to suppose that this is an unarmed form. On that account I have had spines depicted in the drawing.

The oral sucker is subterminal and has a diameter of ·22–·25 mm. It is rounded and rather shallow. The ventral sucker is slightly transverse and measures ·24 × ·25 mm. It is only very little larger than the oral sucker, and it is situated at a distance of ·67–·84 mm. from the anterior end, *i. e.* about one-third of the body-length. There is a distinct prepharynx followed by a large pharynx measuring about ·13 × ·14 mm. The œsophagus is about the same length, and the bifurcation takes place midway between the suckers. The intestinal diverticula are fairly straight and of considerable width. They are longer than in the other species of *Styphlodora*, reaching to within ·18–·29 mm. of the posterior end. They are very slightly unequal in length.

The main excretory vesicle was entirely invisible, but it was apparent that it gave off numerous lateral branches, which, anastomosing freely, gave the body a honeycomb-like appearance.

The testes lie obliquely behind one another, the left being in

front. They are separated by the uterus, which passes between them, but does not overlap them to any great extent. Their outline is irregular, but they appear to be roughly triangular or trilobate. The anterior testis lies almost exactly midway between the two ends of the body, but its position in relation to the ovary varies somewhat, and it may be slightly nearer than is shown in the figure. The posterior testis is about ·27 mm. behind the anterior. They touch the intestinal diverticula or overlap them to a very small extent. Their dimensions are, on an average, ·21 × ·17 mm. and ·22 × ·19 mm. The cirrus-pouch is of moderate length and uniform width, measuring ·31 × ·11 mm. It extends to about the posterior border of the ventral sucker, and contains a convoluted vesicula, a short pars prostatica, and a fairly long ductus ejaculatorius. In each of the specimens the cirrus was exserted and was longer than the pouch itself. The genital aperture is situated in the middle line, almost immediately in front of the ventral sucker.

The small round ovary lies just behind the ventral sucker, a little to the right side, and measures ·13 mm. in diameter. Immediately behind it lies a somewhat smaller receptaculum seminis. The yolk-glands lie on each side at the level of the ovary. They are, for the most part, external to the intestinal diverticula, but they also overlap them dorsally. They consist on each side of about a dozen fairly large follicles, which extend from the posterior border of the ventral sucker to the anterior border of the left testis. The transverse yolk-ducts cross the posterior border of the ovary.

The uterus is poorly developed. It passes back between the testes to near the posterior end of the body and returns along much the same path, terminating in a short vagina. It is only slightly convoluted and contains a comparatively small number of eggs. It is confined within the space bounded by the intestinal diverticula, and it does not form any convolutions behind the ends of the intestine, as is the case in the other species of *Styphlodora*. The ova are rather elongated, oval, possessing a large operculum and, in a few cases, a small knob at the anopercular pole. They measure ·038–·048 mm. × ·019–·024 mm., the average size being ·043 × ·021 mm.

The features which appear to distinguish this form as a definite species are the length of the intestinal diverticula and the restricted extent of the uterus. It is not impossible that both these features may be less marked in a fully-grown specimen. In addition the yolk-glands are slightly less extensive than they are in the other species of the genus. From *S. serrata* it is further distinguished by the relatively larger size of the suckers. Both *S. condita* and *S. horrida* also possess relatively smaller suckers, and in these species the distance between the suckers is considerably less. The only other species of *Styphlodora*, namely *S. similis* Sonsino and *S. bascaniensis* Goldberger, present marked features of difference from the present species.

References.

1. De Faria, Gomez. 1910.—Contribution towards the Classification of Brazilian Entozoa. II. *Dicrocœlium infidum*, n. sp., Parasite of the Gall-bladder of *Eunectes marina* L. Memorias do Instituto Oswaldo Cruz, ii. (1) pp. 22–28, pl. 2.
2. De Faria, Gomez. 1911.—Beiträge zur Systematik der brazilianischen Helminthen. IV. *Styphlodora condita*, n. sp. Memorias do Instituto Oswaldo Cruz, iii. (1) pp. 40–45, pl. 1.
3. Goldberger, J. 1911.—A New Trematode (*Styphlodora bascaniensis*) with a blind Laurer's Canal. Proc. U.S. Nat. Mus. xl. pp. 233–239.
4. Leidy, J. 1850.—Descriptions of Two Species of *Distoma*, with the partial History of one of them. Journ. Acad. Nat. Sc. Philadelphia, ser. 2, vol. i. pp. 301–310, pl. 43.
5. Looss, A. 1899.—Weitere Beiträge zur Kenntniss der Trematoden-Fauna Aegyptens. Zoolog. Jahrbücher, Abt. f. Syst. xii. pp. 707–708, pl. 26, fig. 28.
6. Odhner, T. 1910.—Nordostafrikanische Trematoden. Results Swedish Zool. Exped. to Egypt and White Nile, 1901, p. 53, note 2, fig. v.

51. Statistical Note on the Worm Parasites collected from the Animals dying in the Zoological Gardens, from December 1910 till April 1912.

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At the scientific meeting of the Society held on May 21st last, I referred to the excellent work which is being done by the Prosectorial department in acquiring information concerning the parasites which infect the animals living in the Gardens. This is particularly noteworthy in regard to the worm parasites, about which many valuable facts have been obtained. Following my remarks at the meeting, Dr. Beddard suggested that I might be able to supply some general information regarding the animals which had been sent to me for examination, and acting on this suggestion I venture to offer the following communication.

The scheme, which owes its initiation to the Secretary of the